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VOL. 8 No. 14

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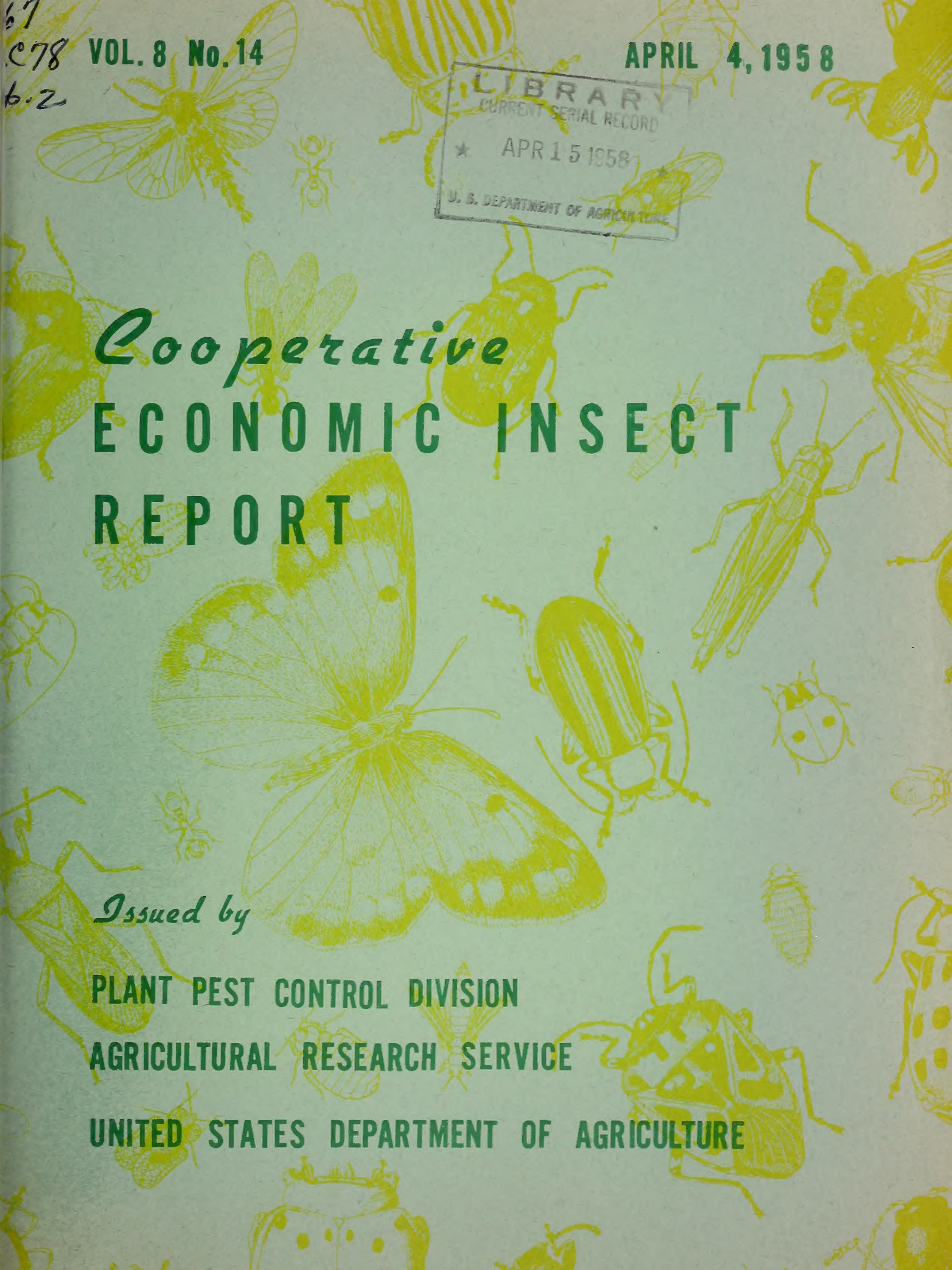

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Plant Pest Survey Section
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 8 April 4, 1958 Number 14

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

ALFALFA WEEVIL larvae active in some eastern areas. (p. 258).

BOLL WEEVIL winter survival unusually low in Mississippi, North and South Carolina and Virginia. (p. 259).

IMPORTED FIRE ANT distribution and eradication in Texas. (p. 261).

SUMMARY OF INSECT CONDITIONS - 1957 - Washington (p. 264).

BEET LEAFHOPPER and curly top conditions in the southern Great Plains and adjacent areas in 1957. (p. 270).

Distribution of LESSER CLOVER LEAF WEEVIL. (p. 263).

INSECTS not known to occur in the United States. (p. 271).

ADDITIONAL NOTES. (pp. 262,269).

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Reports in this issue are for the week ending March 28 unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

APRIL 1958

The Weather Bureau's 30-day outlook for April calls for temperatures to average below seasonal normals east of the Appalachians and generally over the southern half of the nation. Above normal averages are indicated over the northern third of the country from the Great Lakes westward to the Pacific coast. In unspecified areas near normal is predicted.

Precipitation is expected to exceed seasonal normals along the Atlantic Seaboard and also west of the Continental Divide. Subnormal amounts are predicted for the Great Lakes Region, Upper Mississippi Valley, and Southern Texas. In the remaining area about normal amounts are in prospect.

WEATHER OF THE WEEK ENDING MARCH 31

An area of high pressure, centered over the Hudson Bay region of Canada extended over the Great Lakes region, the upper Mississippi Valley, and the Dakotas all week, continuing the dry weather regime which has prevailed in these areas throughout most of the winter. March precipitation set new record lows at many stations in Michigan and some marsh and wood fires occurred in central Wisconsin.

In the remainder of the Nation, the effects of several low pressure systems were frequent precipitation and mostly cloudy skies. Precipitation for the week totaled over an inch in most of the South and along the Pacific Coast. Fla. was one of the heaviest rainfall areas, with weekly totals ranging from 1 to 2 inches in central sections and 2 to 4 inches in southern portions. At Fort Myers, Fla., March precipitation through the 30th totaled 10.31 inches, an amount exceeded only by 11.77 inches in March 1852. March has been unusually cloudy in the greater portion of the country. A good example of this is furnished by Boston, Mass., where only 3 clear days have set a new March record. Cloudy skies with frequent precipitation have kept soils too wet to work, except in extreme north-central areas where a few spots are too dry. In the western Great Plains, no significant duststorms in March, owing to wet soil and lack of strong winds, is unusual.

Temperatures for the week averaged above normal along the Canadian Border and below normal elsewhere. From the lower half of the Great Plains to the Atlantic coast, the week was 6° to 9° cooler than normal, and a light freeze occurred in extreme northern Mississippi on the 28th. A few inches of snow fell in the west-central Great Plains on the 28th, but it nearly all melted by the end of the week. The snow cover east of the Rockies is now limited to a few inches in portions of the Upper Michigan Peninsula, up to a foot or more in northern New England, and a few inches in some sections of north-central Pennsylvania and south-central New York State. In the Far West, the ground is bare at nearly all lower elevations. Mountain snow depths increased in the northern Rockies. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - NEW MEXICO - No infestations on wheat in Curry, Roosevelt and Quay Counties. (N. Mex. Coop. Rept.). TEXAS - Light to heavy infestations feeding on small grain in Rockwall, Hunt and Kaufman Counties. (Hawkins).

EUROPEAN CORN BORER (Pyrausta nubilalis) - SOUTH DAKOTA - Survival in fields averaged 73 percent in 7 counties in the east central area. (Hantsbarger).

ENGLISH GRAIN APHID (Macrosiphum granarium) - TEXAS - Reported as heavy on oats and barley in Kaufman County. (Hawkins). LOUISIANA - Small numbers on wheat and oats in St. Joseph Parish. (Clower, Spink).

ARMYWORM (Pseudaletia unipuncta) - TEXAS - Infesting small grain in Brazos County. (Whipprecht).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Active on small grains and grass in northern counties. (Knowlton).

A LEAF MINER (Phytomyza nigra) - OREGON - Infestations in grass and grain fields more numerous than for several years in Benton and Lane Counties. Miners entering pupal stage. (Every, March 23).

A WHEAT SAWFLY (Pachynematus sporax) - CALIFORNIA - Survey of wheat fields in the Cuyama Valley negative to date. Mapping and preparations for treatment of approximately 20,000 acres in the Valley are underway. (Cal. Coop. Rept.).

Wireworm Injury Survey of Field Corn in Maryland, 1957: In early June 35,000 young corn plants in 7 counties, representing all sections and soil types in the State were examined for injury by wireworms. Characteristic injury was found in only 0.5 percent of the plants. Wicomico County showed the highest injury rate of 0.9 percent. Indications are that wireworms were not a general problem in field corn in 1957. (U. Md., Ent. Dept.).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata) - OREGON - Active with feeding damage on clover and in flower beds in Marion County. (Capizzi, March 23).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Very light infestations in alfalfa fields in Quay and Union Counties. Most populations in southern and eastern areas have declined in number. (N. Mex. Coop. Rept.). TEXAS - Light on alfalfa in Brazos County. (Whipprecht).

POTATO LEAFHOPPER (Empoasca fabae) - FLORIDA - None taken on blue lupine at University of Florida Experiment Station, Gainesville, Alachua County, to March 23. This is probably due to the cold winter. By same date in 1957, 153 had been taken. (Mead).

PEA APHID (Macrosiphum pisi) - DELAWARE - Small colonies on alfalfa in Primehook area, Sussex County. (MacCreary, Conrad). VIRGINIA - Very light in an alfalfa field in Montgomery County. (Morris).

LYGUS BUGS (Lygus spp.) - UTAH - Active in Box Elder, Weber, Salt Lake, Duchesne and Uintah Counties. L. elisus on alfalfa and grass in Cache County. (Knowlton).

CLOVER LEAF WEEVIL (Hypera punctata) - DELAWARE - Few fourth-instar larvae on alfalfa in New Castle and Sussex Counties. (MacCreary, Conrad). VIRGINIA - Present in alfalfa and clover fields in Montgomery, Prince Edward, Nottoway, Lunenburg, Charlotte and Halifax Counties with light damage. (Morris).

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Surveys of alfalfa fields on lower Eastern Shore showed light numbers of small larvae hatching in opening leaflets. Activity generally retarded by cool wet weather. (U. Md., Ent. Dept.). NORTH CAROLINA - Larval feeding in Piedmont area almost halted by cold weather. Little or no damage on new growth, some damage to old terminals. (Farrier). VIRGINIA - Adults active in alfalfa in southern part of State. Small larvae observed on alfalfa in Nottoway, Lunenburg, Charlotte and Halifax Counties. Light damage observed in these counties as well as Prince Edward and Montgomery Counties. (Morris).

FRUIT INSECTS

PEAR THRIPS (Taeniothrips inconsequens) - OREGON - Began emerging in the Willamette Valley by mid-March and reached peak March 25. Infestations appear lighter than in 1957. (Jones).

APHIDS - UTAH - Eggs abundant in apple orchards at Honeyville, Box Elder County. (Knowlton).

SCALE INSECTS - MARYLAND - Some growers reporting infestations, including Aspidiotus pernisiosus and A. forbesi. (U. Md., Ent. Rept.).

PACIFIC MITE (Tetranychus pacificus) - CALIFORNIA - Medium populations infesting almond trees in Durham area of Butte County. (Cal. Coop. Rept.).

HALL SCALE (Nilotaspis halli) - CALIFORNIA - Final inspection of Stilson Canyon area completed during February. Final inspections being made in the Chico City area. Microscope examinations of twigs during February were negative. (PPC, West. Reg., Rept.).

FILBERT LEAF ROLLER (Archips rosana) - OREGON - Eggs began hatching in Benton County, March 27. (Every).

A FILBERT APHID (Myzocallis coryli) - OREGON - Nymphs appeared in moderate numbers in Willamette Valley in mid-March. (Every).

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - All stages averaging hundreds per stem on satsuma and kumquat at Monticello, Jefferson County. (Fla. Coop. Surv., March 10).

GREENHOUSE SLUG (Milax gagates) - CALIFORNIA - Heavy on citrus in Highgrove area of Riverside County. (Cal. Coop. Rept.).

TRUCK CROP INSECTS

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Infestations on cabbage and collards light to moderate in Colquitt and Thomas Counties and moderate to heavy in Brooks County. (Johnson). Texas - Infestations increasing on late-planted cabbage in lower Rio Grande Valley. (Deer).

IMPORTED CABBAGEWORM (Pieris rapae) - NORTH CAROLINA - First adult of season seen in Wake County. (Scott, March 23).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Light infestation on collards in Brooks County. (Johnson).

A CUTWORM (Platyperigae extima) - CALIFORNIA - Medium infestation on strawberries in Watsonville area, Santa Cruz County. (Cal. Coop. Rept.).

POTATO PSYLLID (Paratrioza cockerelli) - TEXAS - Observed feeding on tomatoes in lower Rio Grande Valley. (Deer).

SERPENTINE LEAF MINER (Liriomyza sp.) - FLORIDA - Sudden light infestation on potatoes, pole beans and tomatoes in Redlands area of Dade County. (Fla. Coop. Surv., March 4).

TOMATO FRUITWORM (Heliothis zea) - TEXAS - Observed feeding on tomatoes in lower Rio Grande Valley. (Deer).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Heavy infestations on tomato plant beds in Colquitt County. (Johnson).

COTTON INSECTS

Boll Weevil Survival Survey - Spring 1958

SOUTH CAROLINA, NORTH CAROLINA and VIRGINIA - Spring surface woods trash examinations were made February 27 - March 28 in the same five representative areas of these States in which fall examinations were made in 1957. Results of examinations were as follows:

Areas	Avg. No. Weevils Per Acre	Percent Survival
1. South central S. C.	457	11.5
2. Coastal Plains S. C. & N. C.	403	3.5
3. Piedmont S. C. & N. C.	296	4.4
4. North central North Carolina	53.8	2.4
5. Southeastern Virginia	53.8	1.6

As can be seen, the percent survival was lowest in Virginia and highest in south central South Carolina. These numbers are far below the 1957 spring averages and survival percentages. In Florence County, South Carolina, an average of 538 weevils per acre was found this spring with a winter survival of 6.9 percent, which is the lowest percent survival on record for the county. At no time have fewer weevils been found in spring examinations in this county.

MISSISSIPPI - Collections of woods trash were begun March 15 and examinations completed March 21. Wherever possible, samples were taken from the same locations that were sampled last fall. Results of the survey are shown in the following table.

Area	Average No. Weevils Per Acre	Percent Survival
1. Lower delta	418	8.51
2. Central delta	551	9.31
3. North delta	381	3.44
4. Hill section	219	5.33

These percentage survivals are the lowest recorded since records have been kept in this State. (Ent. Res. Div. in Coop. with States and PPC)

CUTWORMS - TEXAS - Attacking seedling cotton in lower Rio Grande Valley. (Deer).

SPIDER MITES - TEXAS - Infesting cotton in lower Rio Grande Valley. (Deer).

TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light to moderate infestations on tobacco plant beds in Colquitt, Lowndes and Pierce Counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light infestations on tobacco plant beds in 8 counties. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

TURPENTINE BEETLES - TEXAS - Causing damage to pine trees in Hardin County. (Peck, Turney).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CALIFORNIA - Heavy infestations attacking Colorado blue spruce in Auburn area of Placer County. (Cal. Coop. Rept.).

A PINE BARK APHID - PENNSYLVANIA - Quite heavy on large ornamental pines in Greene County. (Udine).

A MITE (Pentamerismus erythreus) - CALIFORNIA - Heavy populations on thuja in Redwood City, San Mateo County. (Cal. Coop. Rept.).

HOLLY LEAF MINER - OREGON - Phytomyza ilicis pupation occurred at Portland by March 18. (Goeden). VIRGINIA - Phytomyza sp. larvae and pupae are heavy in leaves of a holly tree at Bon Air, Chesterfield County. (Rowell).

A GRASS BUG (Arhyssus barberi) - OREGON - Abundant on locust trees near Pilot Rock, Umatilla County. Det. John D. Lattin. (Chinn).

A SCALE (Lineaspis cupressi) - CALIFORNIA - Heavy infestations on native juniper in Ventucopa area of Santa Barbara County. (Cal. Coop. Rept.)

A TWIG GIRDLER (Agrilus politus politus) - CALIFORNIA - Heavy populations on weeping willow in Scaramento, Sacramento County. (Cal. Coop. Rept.).

GREEDY SCALE (Aspidiotus camelliae) - CALIFORNIA - Populations heavy on camellia at Hayward, Alameda County. (Cal. Coop. Rept.).

ROSE APHID (Macrosiphum rosae) - NEW MEXICO - Heavy infestation on roses at Alamogordo, Otero County. Continues as a minor problem in all areas except in northern part of State. (N. Mex. Coop. Rept.).

PEA LEAF WEEVIL (Sitona lineata) - OREGON - Adults have attacked a planting of miniature roses in Washington County. Feeding was particularly evident on lower growing plants and lower leaves of others, with 100 percent of leaves injured on some plants. Feeding was most evident March 1-9, but has probably been intermittent since early January. (Getzendaner).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - OREGON - Infestations local but severe in Marion County with maggots pupating. (Larson).

APHIDS - NEW MEXICO - Heavy infestation on iris at Fort Sumner, De Baca County. (N. Mex. Coop. Rept.).

WESTERN TUSSOCK MOTH (Hemerocampa vetusta) - CALIFORNIA - Infestations on malva in San Ysidro area of San Diego County reported as heavy. (Cal. Coop. Rept.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (*Hypoderma* spp.) - NEW MEXICO - Attacking cattle in Harding County. (N. Mex. Coop. Rept.). UTAH - Common, and sometimes numerous, in herds in many parts of the State. (Knowlton). VIRGINIA - Averaged 6 per head in a herd of cattle in Rockbridge County. Approximately 75 percent were *H. bovis* and 25 percent *H. lineatum*. (Turner).

CATTLE LICE - NEW MEXICO - One heavy infestation on 4-6 month old calves near Maxwell, Colfax County. Most other range areas of State have spotty light infestations. (N. Mex. Coop. Rept.).

EAR TICK (*Otobius megnini*) - TEXAS - Infesting ears of cattle in Limestone County. (Turney).

HORSE SUCKING LOUSE (*Haematopinus asini*) - SOUTH DAKOTA - Heavy infestation on a saddle horse in Brookings, Brookings County. (Lofgren).

SHEEP KED (*Melophagus ovinus*) - PENNSYLVANIA - Numerous on untreated sheep and quite heavy on lambs in Greene County. Treated herds free. (Udine).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (*Trogoderma granarium*) - ARIZONA - One new infestation found during February. Total of 193 infestations found since beginning of program in State. Inspections in NEVADA were negative. Intensive surveys were made in northeastern COLORADO and one county in western Colorado. All specimens submitted were negative. Inspections were made, mainly on coastal areas, in WASHINGTON by State personnel. (PPC, West. Reg., Rept.).

Stored-grain Pest Survey, Oklahoma: Inspection of 21 feed and seed establishments in the northeastern part of the State showed RICE WEEVIL severe in 1, heavy in 1, light in 1; LESSER GRAIN BORER light in 2; RED FLOUR BEETLE light in 2; INDIAN-MEAL MOTH severe in 1, heavy in 1, medium in 1, light in 6; SAW-TOOTHED GRAIN BEETLE light in 1; CADELLE light in 3, occasional in 2; ANGOUMOIS GRAIN MOTH heavy in 1; DERMESTIDS occasional in 2; FLAT GRAIN BEETLE light in 1; YELLOW MEALWORM light in 1; KHAPRA BEETLE was negative. Various grains and seeds were included in the inspection. (Coppock, Stiles).

BENEFICIAL INSECTS

HONEY BEE (*Apis mellifera*) - CALIFORNIA - Serious damage to 45 colonies caused by flood waters in an apiary in Tehama County. (Cal. Coop. Rept.).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - TEXAS - Has been found in Orange, Jefferson, Newton, Tyler, Jasper, Hardin, Harris, Smith, Liberty, Henderson, Gregg, Harrison and Bexar Counties. There have been 1,581.6 acres treated for this insect as of March 21. (Texas Coop. Surv., PPC).

BOXELDER BUG (*Leptocoris trivittatus*) - MARYLAND - Entering homes and causing annoyance to homeowners in Baltimore and in College Park, Prince Georges County. (U. Md.,Ent. Dept.).

BROWN-BANDED ROACH (*Supella supellectilium*) - CALIFORNIA - A nuisance in the kitchen and bathroom of a home in Sacramento, Sacramento County. This roach is new to the State and has seldom been reported in heavy populations. (Cal. Coop. Rept.).

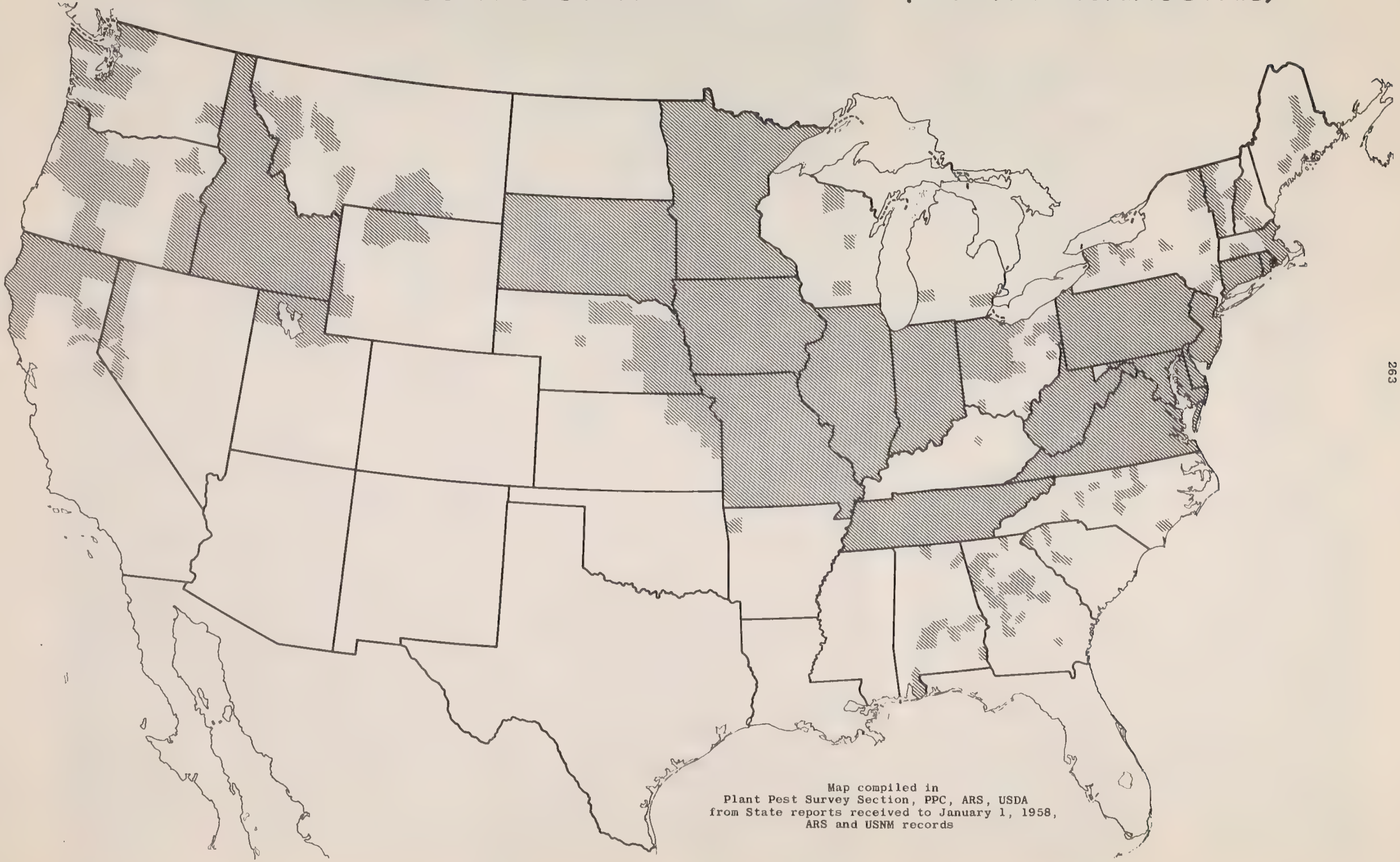
ADDITIONAL NOTES

OKLAHOMA - Very low numbers of SPOTTED ALFALFA APHID in northeastern counties. Remaining populations of GREENBUG generally light in Hennessey area; spraying has given good control. Occasional to light numbers of WINTER GRAIN MITE in small grains in Creek County. Scattered APPLE GRAIN APHID colonies average 0-100 per linear foot in wheat in Creek County. CLOVER LEAF WEEVIL larvae number 0-2 per alfalfa crown in Tulsa County. CATTLE LICE present in heaviest infestation in years in southern counties.

LIGHT TRAP COLLECTIONS

	Hel. zea	Pseud. unip.	Trich. ni	Laph. frug.	Agrot yps.	Perid. marg.	Felt. subt.	Prod. ornith.
FLORIDA								
Monticello 3/18,25		9			3			
Quincy 3/17		10			5			
Sanford 3/19	1		2		2			
LOUISIANA								
Baton Rouge 3/21-27					1			
TEXAS								
Brownsville 3/15-21	4	68	4	16	40	28	76	
Weslaco 3/1-15		447	22	48	24	92	119	22
SOUTH CAROLINA (County)								
Charleston 3/24-30		14			1	1		2

DISTRIBUTION OF LESSER CLOVER LEAF WEEVIL *(HYPERA NIGRIROSTRIS)*



Map compiled in
Plant Pest Survey Section, PPC, ARS, USDA
from State reports received to January 1, 1958,
ARS and USNM records

SUMMARY OF INSECT CONDITIONS - 1957

WASHINGTON

Prepared by E. F. Dailey

Highlights: A number of unusual insect conditions occurred during the 1957 season which were associated more or less directly with weather conditions. APHID populations in general were considerable heavier than in 1956. Heavy chemical treatment was required to control PEA APHID in Walla Walla and Palouse areas. BEAN APHID required control treatment in Yakima Valley and Columbia Basin areas. Infestations of BALSAM WOOLLY APHID continued to increase. LILAC LEAF MINER was more destructive in western areas than at any previous time. PEAR PSYLLA reached heaviest populations ever recorded in Yakima and Wenatchee areas. More adults of CORN EARWORM were trapped in the Yakima Valley than at any time since 1954. Extremely heavy populations of BEET LEAFHOPPER occurred in eastern areas.

Cereal and Forage Insects: The migrant population of PEA APHID (*Macrosiphum pisi*) on alfalfa was severely reduced by intermittent rains in the Walla Walla area May 19-25. However, populations increased to higher than usual average densities on peas later in the season and required the greatest amount of chemical control since 1954. Cool weather resulted in late maturing of dry peas in the Palouse area and heavy pea populations built up, 28 June to 5 July. By 12 July counts averaged 30 per tip in the Pullman area and approximately 5,000 acres received chemical treatment. ENGLISH GRAIN APHID (*Macrosiphum granarium*) was light to moderate in eastern wheat growing areas. CLOVER APHID (*Anuraphis bakeri*) caused light to moderate damage on red clover in eastern and western counties. A CHLOROPID STEM MAGGOT (*Oscinella nitidissima*) caused approximately 5 percent stand loss in plantings of Kentucky bluegrass at the plant introduction nursery at Pullman. GLASSY CUTWORM (*Crymodes devastator*) and CRANBERRY GIRDLER (*Crambus topiarius*) though generally lighter than in 1956, continued moderate to heavy damage to Merion bluegrass and other seed grasses in Spokane County. A GELECHIID (*Chionodes psiloptera*) caused moderate to heavy damage to seed grasses in higher elevation non-irrigated fields along with the cranberry girdler. DATE MITE (*Oligonychus pratensis*) produced heavy damage to Merion bluegrass near Dayton, Columbia County. WHEAT HEAD ARMYWORM (*Faronta diffusa*) caused light damage to wheat in Klickitat County. A MINT CUTWORM (*Heliothis phloxiphaga*) attacked developing wheat heads in Whitman County. A MEALYBUG (*Heterococcus graminicola*) produced light damage in Merion bluegrass seed fields in Spokane and Garfield Counties. A heavy infestation of TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) severly damaged Ladino clover seed fields near Quincy in July. During May CLOVER ROOT BORER (*Hylastinus obscurus*) caused severe crown damage to most red clover areas in Grays Harbor County, while LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) caused severe localized damage in several red clover fields in the County. CLOVER LEAF WEEVIL (*Hypera punctata*) was scarce. PEA LEAF WEEVIL (*Sitona lineata*) caused considerable foliage notching in red clover seed fields near Chehalis, Lewis County, in August, up to 75 adults per 25 sweeps. SWEETCLOVER WEEVIL (*Sitona cylindricollis*) continued to cause extensive and severe damage to sweet clover throughout eastern Washington.

The clover root curculio, lesser clover leaf weevil and sweetclover weevil were present in the Columbia Basin in small numbers and, in the case of the first two species, in localized areas only. The ALFALFA WEEVIL (*Hypera postica*) was not found in 1957. Heavy infestations of CLOVER SEED CHALCID (*Bruchophagus gibbus*) caused severe damage locally in eastern areas on alfalfa and red clover due to improper cultural practices during the previous season. LYGUS BUGS (Lygus hesperus and L. elisus) were generally well controlled on alfalfa throughout eastern Washington with only occasional reports of damage. Total cost of insecticide treatments on alfalfa seed fields amounted to $200,000. CORN EARWORM (Heliothis zea) infestations ranged from 3-100 percent in the area from Yakima to Prosser with most fields examined showing over 60 percent infested. WIREWORMS were of smaller consequence in corn than in 1956. PACIFIC COAST WIREWORM (Limonius canus) and SUGAR-BEET WIREWORM (L. californicus) caused heavy stand loss in two fields of spring wheat near Walla Walla. GRASSHOPPERS were present in considerably greater numbers than during 1956, being present in relative abundance in many counties where generally only moderate populations occur. The species in order of prevalence and importance were Melanoplus bilituratus, M. bivitattus, M. packardi, Aulocara elliotti, Camnula pellucida and Oedaleonotus enigma. Control treatments on croplands were applied principally on small acreages of alfalfa scattered through Ferry, Okanogan, Stevens, Asotin, Chelan, Douglas and Grant Counties. A number of red clover fields in Grant Count also received control treatment. The adult grasshopper survey indicated threatening to severe infestations on 326,000 acres. Heavy infestations of the GRAY GARDEN SLUG (Deroceras reticulatum) caused light to moderate damage to ladino clover/orchard grass cover crop in Grays Harbor County.

Tree Fruit Insects: GRASSHOPPERS (primarily Melanoplus bilituratus and M. bivitattus) required control on young fruit trees in Chelan County. PEAR-SLUG (Caliroa cerasi) infestations throughout western Washington were most extensive noted in several years. Widespread damage occurred on pear and cherry during August with almost conplete defoliation of many cherry trees. APPLE AND THORN SKELETONIZER (Anthophila pariana) occurred in western areas in greater abundance than for several years causing severe damage to apple trees during August and September. Effective CODLING MOTH (Carpocapsa pomonella) control resulted in negligible damage in all commercial apple growing areas of eastern Washington. Total cost of control amounted to $1,300,000. ORIENTAL FRUIT MOTH (Grapholitha molesta) remains confined to the Lombard Hill-Knight Loop area in Yakima County. During the fall of 1956 there was a ¼-mile spread to the southeast. Good control was obtained with negligible damage throughtout the area. PEACH TWIG BORER (Anarsia lineatella) continues extensive damage on peach trees in north central areas and occasional heavy damage in the Wenatchee area. Causes of injury were generally attributed to improper timing or omission of sprays. GREEN PEACH APHID (Myzus persicae) was more abundant on peach trees in lower Yakima Valley than for several years. APPLE APHID (Aphis pomi) was generally more abundant than during 1956. Moderate to heavy infestations occurred throughout the Yakima Valley and in the Okanogan area. Damage in these areas was generally moderate; occasionally severe. WOOLLY APPLE APHID (Eriosoma lanigerum) was of general concern throughout the Yakima Valley and caused moderate damage. The heaviest outbreak of PEAR PSYLLA (Psylla pyricola) was recorded in the Wenatchee and Yakima areas. Frequent periods of cool spring weather were probably a major factor contributing to the unusual abundance early in the season. Activity reached a low point during the first 2 weeks of July in Wenatchee and Yakima orchards and late season build up was light, well below anticipated levels in both areas. Although damage was extensive it was less severe than anticipated. Another significant factor in this outbreak may have been an unusually large overwintered population resulting from omission of dormant sprays and pre-pink sprays on winter injured trees in 1956. Also, dormant sprays are now being regularly omitted by many growers in Yakima and mainly Wenatchee. In addition, field observations indicate that this species is becoming "difficult to control with phosphorous materials." EUROPEAN FRUIT LECANIUM (Lecanium corni) caused moderate damage on apricots in localized orchards in the Wenatchee area. WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) was well controlled with negligible damage in all commercial cherry areas. PEAR RUST MITE (Epitrimerus pyri), APPLE RUST MITE (Vasates schlechtendali), PEACH SILVER MITE (Vasates cornutus) and PLUM NURSERY MITE (Vasatus fockui), on cherry, built up heavily on their host trees in localized areas where controls were inadequate in the Okanogan and Wenatchee areas during warm weather in July. In general, rust mites caused light to moderate damage in the Yakima and Wenatchee areas. TWO-SPOTTED SPIDER MITE (Tetranychus telarius)-light infestation over the general Wenatchee area. EUROPEAN RED MITE (Panonychus ulmi) caused moderate damage to fruit trees throughout the Yakima Valley and moderate to heavy damage in some orchards in the Wenatchee area. CATFACING of peaches by lygus bugs (Lygus hesperus, L. elisus) stink bugs and cutworms was more serious in the Wenatchee area than it has been for 10 years.

Small Fruit Insects: A GRAPE LEAFHOPPER (Erythroneura elegantula) was more prevalent in the lower Yakima Valley than for several years. Damage was generally light. The GRAPE MEALYBUG (Pseudococcus maritimus) was prevalent in grape areas of Yakima County. Thick deposits of honeydew and the presence of eggs and crawlers on fruit caused concern in processing plants. A heavy overwintered population of SPIDER MITES (probably Tetranychus willamettei) occurred in raspberry fields in Skagit and Whatcom Counties. Workers complained of dermatitis from handling canes. All infestations were satisfactorily controlled. A heavy post-harvest infestation of the TWO-SPOTTED MITE (Tetranychus telarius) in September required control in several raspberry fields in the Puyallup Valley. Raspberry mosaic virus disease spread by the APHID (Amphorophora rubi) caused an estimated loss of 5 percent evaluated at $20,790 on raspberries in Snohomish County. Heavy infestations of the RASPBERRY CANE MAGGOT (Pegomya rubivora) occurred in raspberry in Mt. Vernon area. Severe infestations of BLACK-HEADED FIREWORM (Rhopobota naevana) were observed in several neglected cranberry bogs in Pacific and Grays Harbor Counties. Heavy first broods are anticipated for 1958. Populations of the CYCLAMEN MITE (Stenotarsonemus pallidus) on strawberries were unusually low and slow in developing in Snohomish, Skagit and Whatcom Counties but heavy infestations occurred in some fields in August. Heavy infestations of a RASPBERRY BUD WEEVIL (Nemocestes incomptus), causing moderate to severe damage, occurred on strawberries planted in recently cleared brush land throughout Skagit, Snohomish and Whatcom Counties. Virus disease spread by the STRAWBERRY APHID (Pentatrichopus fragaefolii) caused an estimated 5 percent loss evaluated at $30,185 on strawberries in Snohomish County; damage by slugs accounted for approximately 1 percent or $6,000 and damage by STRAWBERRY ROOT WEEVIL (Brachyrhinus spp.) and the raspberry bud weevil amounted to about 3 percent or $18,100.

Truck Crop Insects: Larvae of ALFALFA LOOPER (Autographa californica) and CELERY LOOPER (Anagrapha falcifera) caused difficulty in packing plants on green peas from the Palouse and Walla Walla areas. PEA APHID (Macrosiphum pisi) caused a 2 percent crop loss in green peas in Skagit County evaluated at approximately $53,625. Though well controlled, PEA WEEVIL (Bruchus pisorum) damaged processing peas in local areas in the Yakima Valley. This species continues to be a rarity in the Palouse area. GARDEN SYMPHYLID (Scutigerella immaculata) appears to be increasing and spreading, especially in the Yakima Valley where it caused light to moderate damage on beets, asparagus, mint and field corn in localized areas. In western Washington it caused severe damage to a 640 acre planting of mint. BEET LEAFHOPPER (Circulifer tenellus) was unusually abundant in areas throughout the southeastern quarter of the State. Severe loss through curly top disease occurred on susceptible varieties of beans and on cantaloups, watermelons and tomatoes in the Yakima Valley and Columbia Basin. A crop loss in red kidney beans valued at approximately $123,800 occurred in the Quincy area where about 1,000 acres were plowed under and near Moses Lake where an estimated 20 percent loss occurred over approximately 100 acres. Several fields of early crop tomatoes in the Yakima Valley and particularly in the West Wapato area suffered 60-100 percent severe curly top disease and some fields were disced during July. Total loss on tomatoes in the Walla Walla area due to curly top estimated at $5,000. Unusually heavy populations of BEAN APHID (Aphis fabae) occurred in eastern Washington. This species caused a 25 percent loss on pole beans in King

County and a 2 percent loss in Skagit County evaluated at $31,580. Colonies of GREEN PEACH APHID (Myzus persicae) became established on potatoes during the last of May and early in June in the Union Gap area and near Quincy and required controls by June 28. Heavy damage occurred on tomatoes in West Wapato area. Populations increased rapidly late in August in the Columbia Basin and treatment was required in many fields. A 4 percent potato crop loss, due to net necrosis valued at approximately $190,460 occurred in the Moses Lake-Quincy area and a 2 percent loss of approximately $7,400 occurred in Skagit County. INTERMOUNTAIN LEAFHOPPER (Empoasca filamenta) caused generally very light damage on potatoes in the Columbia Basin. PACIFIC COAST WIREWORM (Limonius canus) caused a 6 percent loss of potatoes, valued at approximately $21,270 in Skagit County. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) damage to potatoes in the Yakima Valley and in Grant and Adams Counties ranged from light to heavy with severe damage occurring in local fields. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) occurred in light to heavy populations on potatoes, sugar beets and mint in the Yakima Valley and Columbia Basin. Populations were particularly heavy on potatoes in the Quincy area during August when many fields received control treatment. Moderate to severe damage occurred on spearmint just before harvest in the Roza district. Moderate to heavy infestations of MINT APHID (Phorodon menthae) occurred on mint in the lower Yakima Valley. A very light infestation of Anuraphis menthae-radicis was found on peppermint roots at Grandview on 15 August; first reported record of species in the State. A CUTWORM (Heliothis phloxiphaga) caused light to moderate damage to mint throughout the lower Yakima Valley. PEA MOTH (Laspeyresia nigricana) continues to be effectively controlled in commercial pea growing areas of western Washington. Severe damage continues on onions by ONION MAGGOT (Hylemya antiqua) and, to a lesser degree, by SEED-CORN MAGGOT (Hylemya cilicrura) and LESSER BULB FLY (Eumerus tuberculatus). In general, damage to onions by these species was less extensive than during 1956. Populations of the onion maggot, however, were heavier in the Columbia Basin than during 1956. Approximate evaluations of onion crop losses: $53,300 in the Walla Walla area, $32,900 in the Moses Lake-Quincy area and $18,360 in King County.

SEED-CORN MAGGOT (Hylemya cilicrura) caused moderate damage on beans throughout the Yakima Valley. ASPARAGUS MINER (Melanagromyza simplex) occurred in the heaviest populations in recent years in the lower Yakima Valley. Severe damage was caused in many fields in the Grandview-Toppenish area. ASPARAGUS BEETLE (Crioceris asparagi) and SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) required control on many fields during mid-May. Damage over the lower Yakima Valley was severe in localized fields. CUTWORMS (Euxoa spp.) caused a 3 percent loss evaluated at $9,600 on asparagus in the Walla Walla area. CARROT RUST FLY (Psila rosae) caused heavy damage on carrots in western Washington. A loss of 25 percent evaluated at $41,190 occurred in King County. Infestations of a CARROT APHID (Cavariella aegopodii) in the Walla Walla area caused a loss of $22,500 due to 20 percent size reduction. Heavy infestations of CORN EARWORM (Heliothis zea) occurred on late season sweet corn in the lower Yakima Valley and in the Walla Walla area. Earworm damage accounted for a sweet corn crop loss of approximately $4,760 in the Walla Walla area. Crop losses resulting from damage by the CABBAGE MAGGOT (Hylemya brassicae) amounted to 15 percent, or approximately $3,500 on radishes and turnips in the Walla Walla area. CABBAGE APHID (Brevicoryne brassicae) accounted for approximate $94,485 loss on crucifers in Skagit, Snohomish and King counties. DIAMONDBACK MOTH (Plutella maculipennis), the IMPORTED CABBAGEWORM (Pieris rapae), and the CABBAGE LOOPER (Trichoplusia ni) losses approximated $90,520 on crucifers in these counties. LYGUS BUGS (Lygus hesperus and L. elisus) caused a 75 percent loss in spring processing spinach evaluated at $67,500 and a 25 percent loss due to feeding deformity on cabbage evaluated at $3,000 in the Walla Walla area. Damage on beets varied from moderate to serious in localized areas in the Yakima Valley.

Forest, Ornamental and Shade Tree Insects: LILAC LEAF MINER (Gracilaria *syringella*) occurred in record abundance throughout western Washington. Lilacs and privets were heavily infested and many were completely defoliated. A rather extensive infestation of the ORANGE TORTRIX (*Argyrotainia citrana*) occurred on carnations in a greenhouse at Sumner. This species has become a pest of minor importance in the Puyallup Valley in recent years presumable due to natural control by native parasites. FALL WEBWORM (*Hyphantria cunea*) was present in generally moderate abundance in most areas. Infestations of the WESTERN TENT CATERPILLAR (*Malacosoma pluviale*) and the FOREST TENT CATERPILLAR (*M. disstria*) were rare on cultivated plants. These species are slowly increasing in western Washington following their severe reduction in 1955. Forest insect outbreaks increased in extent and severity after 3 years of decline. BALSAM WOOLLY APHID (*Chermes piceae*) increased 10,000 acres. ENGLEMANN SPRUCE BEETLE(*Dendroctonus engelmanni*) increased in extent with the largest area of damage covering 3,840 acres on the Yakima Indian Reservation. WESTERN PINE BEETLE (*Dendroctonus brevicomis*) increased heavily with greatest damage occurring on 1,600 acres in the Okanogan National Forest. DOUGLAS-FIR BEETLE (*Dendroctonus pseudotsugae*) had steadily declined since its peak year of infestation in 1954. The only large outbreak occurred in 7,040 acres on the Coleville Indian Reservation. Light infestations of SILVER FIR BEETLES (*Pseudohylesinus* spp.) totaling 1,120 acres occurred in the Mount Baker and Snoqualamie National Forests. The first epidemic outbreak in more than a decade of the BLACK-HEADED BUDWORM (*Acleris variana*) occurred over 252,800 acres with the heaviest infestations on hemlock and fir in the Snoqualamie National Forest area.

HEMLOCK SAWFLY (*Neodiprion tsugae*) was associated with the black-headed budworm in an outbreak covering approximately 2,500 acres of hemlock in Pend Orielle County. LARCH BUD MOTH (*Zeiraphera griseana*) outbreaks covered 39,520 acres located mostly in the Okanogan National Forest. Areas of infestation by this species reported in 1956 in Pend Orielle County are continuing. Previous outbreaks of *Acleris variana* and *Zeiraphera griseana* have subsided without causing significant tree mortality. BLACK PINE LEAF SCALE (*Aspidiotus californicus*) persists in epidemic status near Mead, Spokane County and heavy infestations occurred on pines near Cashmere and Dryden in Chelan County. Infestations of PINE NEEDLE SCALE (*Phenacapsis pinifoliae*) increased in extent on pine in northeastern Washington and in Chelan County causing moderate damage in localized areas. Heavy infestations occurred on ornamental pines at Pullman.

OYSTERSHELL SCALE (*Lepidosaphes ulmi*) caused severe damage to poplar, cottonwood, willow and other watershed vegetation in the Wenatchee area. Heavy infestations of the COTTONY-MAPLE SCALE (*Pulvinaria innumerabilis*) with mortality of occasional trees continues in the Pullman, Yakima and Wenatchee areas. PINE BARK APHID (*Pinus strobi*) was seasonally prevalent and caused frequent damage on ornamental conifers in western Washington. Infestations of NORWAY MAPLE APHID (*Periphyllus lyropictus*) increased to very heavy levels on shade tree maples in the Yakima and especially in the Wenatchee areas. Heavy infestations of ELM LEAF BEETLE (*Galerucella xanthomelaena*) caused severe defoliation of occasional elm trees in Wenatchee and Yakima. This species has been at low levels in western Washington since 1953.

Heavy infestations of WALNUT APHID (*Chromaphis juglandicola*) caused severe damage to many black walnut trees throughout Yakima County. SPRUCE APHID (*Aphis abietina*)occurred in the heaviest infestations on ornamental spruces over noted in the Seattle area. Heavy infestations of the APPLE AND THORN SKELTONIZER (*Anthophila pariana*) caused severe damage to ornamental apple varieties in western Washington. Heavy infestations of SOD WEBWORM caused moderate to severe damage to lawns in the Seattle and Edmonds areas.

Beneficial Insects: KLAMMATHWEED BEETLES (*Chrysolina quadrigemina* and *C. hyperici*) have become well established in Clark County from 1953 releases. Successful colonizations were reported from 1956 releases in Pacific County and on Oreas Island in San Juan County. Klammathweed in areas of 1949 release points in Whitman County were controlled. The few regrowth weeds present were being heavily attacked. The BUPRESTID (Agrilus hyperici) that was released in the Union Flats area of Whitman County for klammathweed control was present in very low numbers. A single larva and pupa were recovered. CONVERGENT LADY BEETLES (Hippodamia convergens) were particularly abundant on maples infested with Norway-maple aphid and cottony-maple scale at Pullman. The introduced COCCINELLID (Stethorus punctillum), a mite predator, was abundant in raspberry fields in the Puyallup Valley that were heavily infested with the two-spotted spider mite.

Severe reduction of activity of ALKALI BEE (Nomia melanderi), due to inclement weather during the alfalfa seed set period, resulted in a reduction in seed set estimated at 20-40 percent in areas of normally low bee populations in the West Wapato area. Greater numbers of the MINING BEE (Agapostemon cocerelli) were observed working in alfalfa fields than during 3 or 4 previous years. Infestations of clover aphid in some red clover seed fields in the Columbia Basin were reduced by the PARASITE (Aphelinus lapisligni) from an average of 100-150/head on 2 August to 5-10/head by 16 August. Field inspection of cocoons of the western tent caterpillar and the forest tent caterpillar indicated that the primary PARASITES (Tachinomyia similis, Rileymyia americana and Labrorychus sp.were typically numerous and that Sarcophaga aldrichi and S. houghi were present in abundance as usual. Chalcid egg parasites were active on egg masses. A EUROPEAN PREDATORY FLY (Aphidoetes thompsoni) was released in areas infested by balsam woolly aphid.

Bee Poisoning: In the Yakima Valley several hundred HONEY BEE (Apis mellifera) colonies were damaged by pre-pink insecticide treatments on tree fruits approximately 2,000 hives were damaged by insecticides applied to alfalfa seed fields and about 500 hives were damaged by treatments applied to mint fields. Damage includes killing as well as weakening of colonies causing loss of honey crop and failure to overwinter. Of the 2,000 hives damaged by alfalfa insecticides it was estimated that 500 were killed and that 50 percent of the remainder would not overwinter.

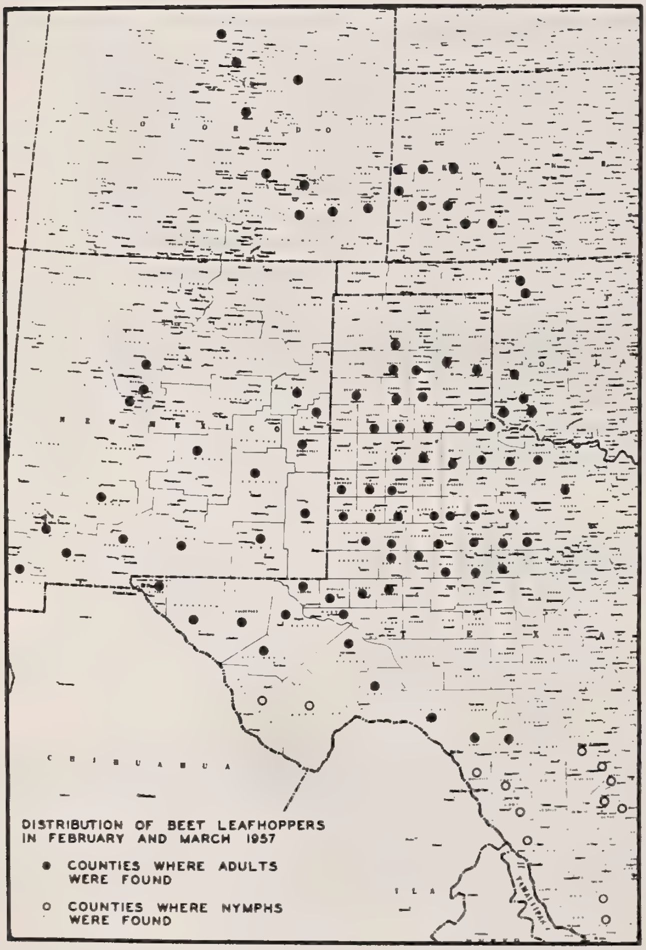
Miscellaneous Insects: A single specimen of the TENEBRIONID (Tribolium destructor) was found infesting food in a Seattle home, September 12. This is a new distribution record, the species being previously known from Vancouver, B.C. Damage to homes by a SUBTERRANEAN TERMITE (Reticulitermes hesperus) appears to be increasing in western Washington judging by the number of complaints received.

Stored-Product Insects: KHAPRA BEETLE has not been found in the State. Scattered outbreaks of the SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) occurred in early October in stored grain throughtout the State. Infestations of RED FLOUR BEETLE (Tribolium castaneum) were frequent by mid-November. In general, stored-grain insect infestations were more widespread and occurred earlier than usual. Primary contributing factors were a higher than normal moisture content of grain at harvest time and unusually mild winter temperatures. Barley was more heavily infested than other grains by all species. Small infestations of Trogoderma parabile, Anthrenus spp., Megatoma spp., Dermestes spp., and Attagenus piceus were found in feed mills seedhouses and breweries during the khapra beetle survey. Ptinus ocellus and P. fur. were common in feed mills in eastern Washington.

ADDITIONAL SUMMARY NOTE FOR 1957 - TEXAS - LESSER CORNSTALK BORER (Elasmopalpus lignosellus) caused considerable damage to peanuts and field peas. DOGWOOD TWIG BORER (Oberea tripunctata was heavy in the peach-growing and plum-growing areas in East Texas. (Tex. Coop. Ins. Surv.). (See CEIR, Vol. 8, No. 12, p. 221).

Beet Leafhopper and Curly Top Conditions in the Southern Great Plains and Adjacent Areas, 1957

Studies by Romney during the 1930's showed that the spring breeding areas of the beet leafhopper (Circulifer tenellus (Bak.)) east of Arizona and Utah were confined to southern New Mexico and southwestern Texas. Drought since 1951, with less than one-half normal rainfall in the western half of Texas and eastern New Mexico, has allowed the beet leafhopper to spread over this area and into western Oklahoma and western Kansas. Curly top, a virus disease transmitted by this insect, has been widely distributed over this area since 1953. Spinach growers in the Winter Garden area of Texas, flax growers in Bee and Live Oak Counties of Texas, and tomato and sugar-beet growers in the remainder of the area have suffered the greatest losses.


CHIHUAHUA
DISTRIBUTION OF BEET LEAFHOPPERS IN FEBRUARY AND MARCH 1957
● COUNTIES WHERE ADULTS WERE FOUND
○ COUNTIES WHERE NYMPHS WERE FOUND

In order to gather more information on this problem and to determine what might take place in 1957, a study was made in eastern Colorado and New Mexico and in western Texas. Oklahoma and Kansas during February and early March 1957. The map shows that adults of the leafhopper were found well distributed from the Rio Grande River east to the 98th meridian and north to the Arkansas River Valley of Colorado and Kansas, but the populations were very low. Nymphs and newly developed adults were found from the Big Bend area of Texas south to the tip, which shows that this insect had been breeding in that area during the winter. The only high concentrations of leafhoppers were found near Pharr, Texas, in the extreme southern tip. In general, the population was one of the smallest found during the past 4-year study.

Leafhoppers were found on 31 different host plants. The most important were tansymustard, townmustard, patata*, Russian-thistle, pepperweed, and filaree. Generally, the host plants were very sparse where present, but were lacking over most of the Area.

Flax in Bee and Live Oak Counties and spinach in the Winter Garden area of Texas were severely damaged by the insect-transmitted virus disease of curly top. (ARS and States Coop.)

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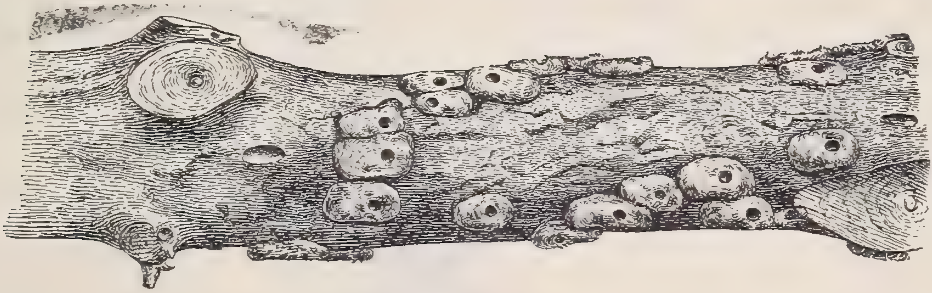
*(Chenopodiaceae)

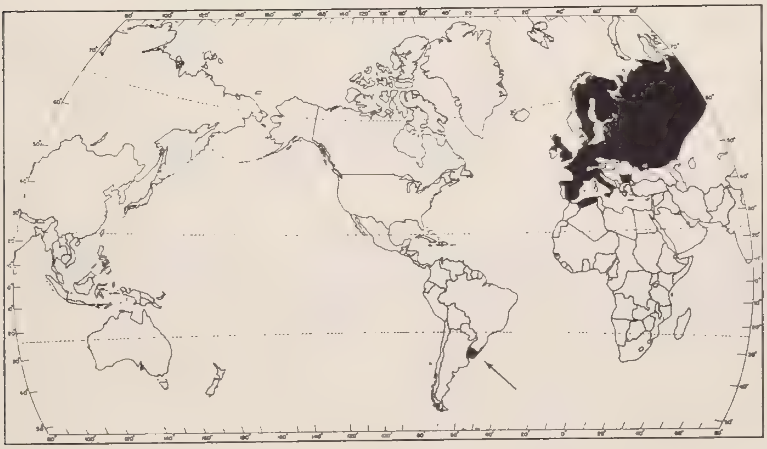
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

BANDED PINE WEEVIL (Pissodes notatus F.)

Economic Importance: Pissodes notatus and the closely related species P. pini, are among the most important forest insects in the British Isles. P. notatus is one of the chief pests of pines in parts of USSR where large portions of new plantations are often killed. Young pines are also severely damaged in Finland and Spain. The weevil first appeared in Uruguay about 1919 and by 1924 it had become a serious pest, destroying thousands of young pine trees. Banded pine weevil is injurious in both the larval and adult stages.



Characteristic Damage by Pissodes notatus



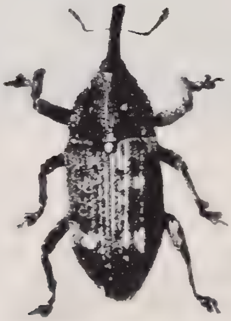
General Distribution of Banded Pine Weevil

Distribution: Most of Europe into eastern Siberia, also Algeria and Uruguay.

Hosts: Pine, spruce, larch, fir.

Life History and Habits: Pissodes notatus adults are long-lived, being found during all the warm months of the year. Life cycle from egg to egg usually requires about one year. Females oviposit in punctures in bark of young pines between the root collar and first whorl of branches and in older trees on trunk and branches. The larvae tunnel between bark and the wood, often producing radiating galleries. These galleries end in the pupal chamber which consists of a hollow, roofed with chips and fibers. Both larvae and adults cause damage. Larvae mine bark of stems and roots, adults feed on young shoots. Favorite breeding sites are in 2-10 year old pine plantations. Attack on pine is characterized by fine punctures on stem, swellings on bark from developing larvae and pupae and exit holes made by emerging adults.

Description: Adult 4-8 mm. in length, red-brown to dark brown. Elytra have two distinct bands of scales. Bands yellowish and white, anterior not meeting in middle, posterior broadened in center. Striae small, not distinct. Antennae inserted at middle of snout, femora not toothed. (Prepared in Plant Pest Survey Section in cooperation with other ARS agencies.) CEIR 8(14) 4-4-58



Pissodes notatus Adult

Figures (except map): Adult from Forestry Commission. 1952. Pissodes weevils. Leaf. 29, 12 pp. London. Damage from Boas, J. E. V. 1924. Dansk Forstzoologi. 761 pp. Copenhagen.